

The following draft terms of registration apply to Engenia Herbicide (EPA File Symbol 7969-UTE):

### **General Terms**

1. The registration will expire on December 20, 2025.

### **Herbicide Resistance Management Plan**

2. You must maintain, update and follow an Herbicide Resistance Management Plan (HRM) as described in Appendix D regarding grower agreements, field detection and remediation, education, evaluation, reporting, and best management practices (BMPs).

### **Tank Mixing, Spray Drift, and Volatility-Reduction Adjuvant Requirements**

3. You must maintain a website at [enter URL]. That website will include a list of products that have been tested pursuant to Appendix A and found, based upon such testing, not to adversely affect the spray drift properties of Engenia Herbicide. The website will identify a testing protocol, consistent with Appendix A, that is appropriate for determining whether the tested product will adversely affect the drift properties of Engenia Herbicide. The website must state that any person seeking to have a product added to the list of approved tank mix partners must perform a study either pursuant to the testing protocol identified on the website or another protocol that has been approved for the particular purpose by EPA, and must submit the test data and results, along with a certification that the studies were performed either pursuant to the testing protocols identified on the website or pursuant to another protocol(s) approved by EPA and that the results of the testing support adding the product to the list of products tested and found not to adversely affect the spray drift properties of Engenia Herbicide, to BASF Corporation. Once notified, you will add appropriately certified products to the list no more than 90 days after you receive such notice. Testing of tank-mix products must be conducted in compliance with procedures as stated forth in Appendix A. Once notified, you may add appropriately certified products to the list no more than 90 days after you receive such notice. Testing of tank-mix products must be conducted in compliance with procedures as stated forth in Appendix A.
4. All test data relating to the impact of tank-mixing any product with Engenia Herbicide on drift properties of Engenia Herbicide generated by you or somebody working for you, along with a certification indicating whether the study was performed either pursuant to the testing protocols identified on the website or pursuant to other protocols approved by EPA and whether the results of the testing support adding the product to the list of products tested and found not to adversely affect the spray drift properties of Engenia Herbicide, must be retained by BASF Corporation. Any and all such records must be submitted to the EPA's Office of Pesticide Programs upon request.
5. The prohibition of using products in a tank-mix with Engenia Herbicide unless the product used is contained on the list [enter URL] and the identification of the website address, shall be included in educational and information materials developed for BASF Corporation, including the materials identified in Appendix D, Section B(I).
6. Testing of any volatility-reduction adjuvant must be conducted in compliance with procedures as set forth in Appendix E. Any potential volatility-reduction adjuvant must demonstrate passing results for both wind tunnel and humidome testing.
7. BASF Corporation must maintain a Volatility-Reduction Adjuvant tab on the website at [enter URL]. The website must identify a testing protocol, consistent with Appendix E, that is appropriate for determining whether the mean humidome airborne dicamba concentration of a test mixture is less than or equivalent to (*i.e.*, not statistically greater than) that of the established testing standard in Appendix E. Products that have been tested pursuant to such testing protocol by BASF Corporation and found, based upon such testing, to result in a mean humidome airborne dicamba concentration

less than or equivalent to that of the established testing standard in Appendix E may be added to the list of approved volatility-reduction adjuvant products on the website tab described above. BASF Corporation must retain copies of all data and analysis from test performed by, or provided to, BASF Corporation based on the Appendix E protocol. Upon the Agency's request, copies of such humidome test data and analysis must be submitted to EPA's Office of Pesticide Programs, along with certification indicating whether the study was performed either pursuant to the testing protocols identified on the website or pursuant to other protocols approved by EPA and whether the results of the testing support adding the product(s) to the list of products tested and found to result in a mean humidome airborne dicamba concentration less than or equivalent to that of the established testing standard in Appendix E.

8. At the discretion of BASF Corporation, the registrant will either perform a study pursuant to the testing protocol herein or request the third-party to perform such study. Should registrant decline to perform testing, the third-party entity or a testing facility on their behalf must perform a study pursuant to the testing protocol identified on the website and must submit to BASF Corporation the test data and results, along with certification that the studies were performed pursuant to the testing protocol identified on the website and that the results of the testing support adding the product to the list of approved volatility-reduction adjuvants for Engenia Herbicide. BASF Corporation will determine whether the testing and results conform to the conditions prescribed in this protocol and, depending on the test conditions and results, will either post the product on the website at [enter URL] or notify the third-party entity that the product did not meet the requirements for posting. BASF Corporation will retain records related to this third-party testing and will supply these records to EPA upon their request.
9. The requirement that an approved volatility-reduction adjuvant must always be tank-mixed with Engenia Herbicide, the listing of approved volatility-reduction adjuvants/buffering adjuvants on the [enter URL] website, and the identification of the website address shall be included in educational and information materials developed by or for BASF, including materials identified in Appendix D, Section B(1).
10. So long as the Engenia Herbicide registration continues to require use of a volatility-reduction adjuvant with every application, BASF will:
  - a. Take appropriate action(s) to ensure that a sufficient supply of Sentris or any other qualified volatility-reduction adjuvant is in the channels of trade for all Engenia Herbicide applications each year, including quantities of Engenia Herbicide contained in products produced by other registrants. To ensure the supply of qualified volatility-reduction adjuvant is sufficient throughout each season, BASF will:
    - i. Project and monitor distribution of Engenia Herbicide
    - ii. Monitor available Sentris/volatility-reduction adjuvant in relevant channels of trade
    - iii. Make available additional supplies if needed to ensure sufficient quantities of Sentris/volatility-reduction adjuvant are available to allow lawful application of the full quantity of Engenia Herbicide that is available in the channels of trade; and
    - iv. Maintain capacity to produce additional Sentris/volatility-reduction adjuvants (or to cause more Sentris/volatility-reduction adjuvants to be produced) whenever any further need is anticipated.
  - b. Make arrangements through appropriate distribution networks to ensure that Sentris or other appropriate volatility-reduction adjuvants are timely available to applicators in all locations where Engenia Herbicide will be applied, before any applicator would apply Engenia Herbicide. Access to Sentris will either be through the same retail outlets as Engenia Herbicide, or if necessary, in particular locations, available from other readily accessible sources. Registrant will timely make available to every applicator information on where Sentris can be ordered or purchased.
  - c. Ensure that all training materials clearly require the mandatory use of Sentris or another volatility-reduction adjuvant with every Engenia Herbicide application. Work with State

authorities to ensure that appropriate training occurs before any application of Engenia Herbicide is made.

- d. Registrant Recordkeeping: BASF will keep records appropriate to document its compliance with its pH buffering adjuvant quantity commitments. BASF will make records available to EPA upon request.

### **Enhanced Reporting**

BASF Corporation must submit the information identified below to EPA's Office of Pesticide Programs under section 6(a)(2), or under 40 CFR 159.195, unless you have previously submitted that information to EPA's Office of Pesticide Programs. To the extent that this reporting requirement conflicts with or is more narrow than any reporting requirements of section 6(a)(2), 40 CFR part 159, or EPA's letter of March 27, 2020 pursuant to 40 CFR 159.195(c), the broader reporting requirement applies.

11. Information received by telephone or in writing regarding potential damage to non-target vegetation from use of dicamba during the 2021-2025 growing seasons regardless of any determination that the incident resulted from misuse (intentional or accidental). Information must be forwarded to EPA regardless of which dicamba product may have been used and/or whether or not the alleged damage resulted from a product being used according to label directions. Data must be organized by product and state to the extent practicable, and must include all available information regarding acreage involved, plant species involved, severity of damage, date and location (coordinates) of incident, known dicamba applications in vicinity of incident, location of application (coordinates), distance from application to incident, temperature and humidity data at time of application, and similar information received. Incident data must be submitted in narrative form and in a spreadsheet format. This information must be submitted with cumulative totals and be submitted annually, beginning September 30, 2021.
12. Information received by telephone or in writing regarding reports of dicamba-resistant weeds, and cases of weed control failure and/or suspected resistance. All information must be forwarded to EPA regardless of which dicamba product may have been used and/or whether or not the alleged resistance occurred after an application made according to label directions. This information must be submitted annually beginning September 30, 2021.
13. Any information or analysis finding that foods/commodities contain dicamba residues that are not covered by a tolerance or exceed established tolerance levels. This information must be submitted annually, beginning September 30, 2021.

### **Hooded Sprayer Requirement**

14. Testing of hooded sprayers must be conducted in compliance with procedures as set forth in Appendix F.
15. If Engenia Herbicide label provides for a reduced buffer when a qualified hooded sprayer is used, BASF Corporation must maintain a hooded sprayer tab on the website at [enter URL] [Herbicideapplicationrequirements.com](https://herbicideapplicationrequirements.com) identifying the qualified sprayers. The website must identify a testing protocol, consistent with Appendix F, that is appropriate for determining whether spray drift of dicamba from the proposed hooded sprayer is equivalent to or less than (*i.e.*, not statistically greater than) that from the established baseline hooded sprayer in Appendix F. Hooded sprayers that have been tested pursuant to Appendix F by BASF Corporation and found, based upon such testing, to reduce the spray drift of dicamba to a level that is equivalent to or less than that from the established baseline hooded sprayer identified in Appendix F may be added to the list of qualified hooded sprayers on the website tab described above. BASF Corporation must retain copies of all data and analysis from tests performed by, or provided to, BASF Corporation based on the Appendix F protocol. Upon the Agency's request, copies of such test data and analysis must be submitted to EPA's Office of Pesticide Programs, along with certification indicating whether the study was

performed pursuant to the testing protocols identified on the website and whether the results of the testing support adding the tested hooded sprayer to the list of products tested and found to result in spray drift of dicamba to a level that is equivalent to or less than that from the established baseline hooded sprayer identified in Appendix F.

16. Additionally, the website must state that any other person or entity seeking to have a hooded sprayer added to BASF Corporation's list of qualified hooded sprayers must contact BASF Corporation prior to any testing for this purpose. At the discretion of BASF Corporation, BASF Corporation will either perform a study pursuant to the testing protocol herein or request the third-party to perform such study. Should BASF Corporation decline to perform testing, the third-party entity or a testing facility on their behalf must perform a study pursuant to the testing protocol identified on the website and must submit to BASF Corporation the test data and results, along with certification that the studies were performed pursuant to the testing protocol identified on the website and that the results of the testing support adding the hooded sprayer to the list of qualified hooded sprayers for dicamba. BASF will certify that the testing and results conform to the conditions prescribed in this protocol and, pursuant to the test conditions and results, will either post the hooded sprayer on the website at [enter URL] or notify the third-party entity that the hooded sprayer did not meet the requirements for posting. BASF Corporation will retain records related to this third-party testing of hooded sprayers and will supply these records to EPA upon their request.
17. Dicamba application requirements when using qualified hooded sprayers, the listing of qualified hooded sprayers on the [enter URL] website, and the identification of the website address shall be included in educational and information materials developed by or for BASF, including the materials identified in Appendix D, Section B(1).

## Appendix A

### Testing of Tank Mix Products for Spray Drift Properties

Products proposed for tank-mixing with may be added to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide contained on the web site if a study is performed under the testing conditions set forth below; the test information is reported as set forth below; and the results are interpreted as set forth below and the interpretation supports adding the tested product to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide:

#### Testing Conditions

Spray chamber test using conditions described in ASTM E-2798-11; or Wind Tunnel test using conditions described in EPA Final Generic Verification Protocol for Testing Pesticide Application Spray Drift Reduction Technologies for Row and Field Crops (September, 2013)

Testing Media: Engenia Herbicide + Engenia Herbicide Proposed Tank Mix Product

Test Nozzle: Tee Jet® TTI 11004 at 63 psi

Number of Replicates: 3 for each tested medium

#### Reporting

Validation information as summarized in Appendix B

Full droplet spectrum to be reported for each replicate of each tested medium

Perform AGDISP (8.26) modeling run for each replicate droplet spectrum for each tested medium (AGDISP input parameters described in Appendix C)

Establish 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) spray drift deposition estimates from AGDISP run on each replicate for each tested medium

Establish mean and standard deviation of 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for the 3 replicates of each tested medium

One-tail (upper bound) t-test ( $p=Q.1$ ) to determine if proposed tank-mix product is above Engenia Herbicide 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) spray drift deposition.

#### Interpretation of Results

If mean 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for proposed tank-mix product is not statistically greater than mean 110 foot deposition for Engenia Herbicide, proposed tank-mix product can be added to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide contained on the web site. If mean 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for proposed tank-mix product is statistically greater than mean 110 foot (0.5 lb ae/A rate) or 220 foot (1.0 lb ae/A rate) deposition for Engenia Herbicide, proposed tank-mix product cannot be added to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide contained on the web site.

Results from other testing protocols will be acceptable for adding products to the list of products that will not adversely affect the spray drift properties of Engenia Herbicide provided that EPA has determined in writing that such other protocol is appropriate for such purpose.

## Appendix B

### Validation Criteria

- a. Detailed information of instrument setting and measurements
  - The distance from the nozzle tips to the laser settings
  - Measurements of airspeed and flow rate of liquid
- b. Detailed information of test substances
  - Volume composition and density of Engenia Herbicide formulation and tank mixes
- c. Summary of the entire spray output distribution for each nozzle/tank mixes with statistical analysis of replicates.
- d. Graphical outputs of Sympatec Helos laser diffraction particle size analyzer FOR individual spectrum
- e. Report of Dv0.1 (SD), Dv0.5 (SD), and DV0.9 (SD) as well as mean % fines of (< 141pm SD)

## Appendix C

### AGDISP Input Parameters

Parameter	Value	Comments
Application Method Section		
Method	Ground	
Nozzle Type	Flat fan (Default)	The direct use of the DSD overrides the use of “nozzle type”
Boom Pressure	63 psi	If nozzles/tank mixes were tested at 63 psi. It has to be consistent with tank mix as well as Engenia Herbicide for both TeeJet® and AIXR nozzles
Release Height	3 ft	Default
Spray Lines	20	Default
Meteorology Section		
Wind Type	Single height	Default
Wind Speed	15 mph	Under bound from label
Wind Direction	-90 deg	Worst-case and default
Temperature	65 F	Default
Relative Humidity	50%	Default
Surface Section		
Angles	0	Default
Canopy	None	Default
Surface Roughness	0.12 ft	Mean of “crops” cover type
Application Technique Section		
Nozzles	54, even spacing	Standard boom setup
DSD	From wind tunnel results, imported in library	
Atmospheric stability	Strong	Default
Swath Section		
Swath width	90 ft	Standard boom
Swath displacement	0 ft	Worst-case
Spray Material Section		
Spray volume rate	10 gal/A	From label
Volatile/nonvolatile fraction	M 1768 at 1.72% v/v	To calculate volatile/nonvolatile fraction in the tank mix for the model input, provide detailed information of the tested formulations and tank mixes. See sample calculation, below <sup>1</sup>
<sup>1</sup> The tested mixture was 1.72% (v/v) Engenia Herbicide. Engenia Herbicide has a density of 10.2 lb/gal and contains 42.8% (w/v) dicamba DGA salt (2.9 lb acid equivalent/gal). For example, a 10-gallon batch would contain the following: Engenia Herbicide 1.71% * 10 gal = 0.172 gal ; 0.172 gal * 10.2 lb/gal = 1.753 lb Water 10 gal (1280 fl oz) – 22 fl oz = 1258 fl oz = 82.0157 lb Total weight 1.753 lb + 82.016 lb = 83.769 lb Active ingredient fraction: 1.753 lb * 42.8% a.i. = 0.75 lb; 0.75 lb/83.769 lb = 0.00896 (dimensionless) Non-volatile fraction: 0.00896/0.428 = 0.021 (dimensionless)		



## Appendix D

### HERBICIDE RESISTANCE MANAGEMENT PLAN

**BASF Corporation must develop a herbicide resistance management plan that includes all of the following elements:**

#### **A. Field Detection and Remediation Components:**

1. Update and implement an education program for growers, as set forth under the “Educational / Informational Component,” below, that identifies appropriate best management practices (BMPs), as set forth under the “Best Management Practices (BMPs) Component,” below, to avoid, delay, and/or control weed resistance. This plan must convey to growers the importance of complying with BMPs and addressing resistance concerns.
2. If any grower or user informs you of a lack of herbicide efficacy, then you or your representative must (unless denied access by the grower) evaluate the field for “likely resistance” to Engenia Herbicide for each specific species for which lack of herbicide efficacy is reported by applying the criteria set forth in Norsworthy, *et al.*, “Reducing the Risks of Herbicide Resistance: Best Management Practices and Recommendations,” Weed Science 2012 Special Issue: 31–62 (*hereinafter* “Norsworthy criteria”)<sup>1</sup> in each specific state. If denied access BASF must notify EPA immediately, providing the location for which access was denied and contact information for the grower.
3. If resistance to dicamba is confirmed in a specific state for a specific weed species, then BASF must immediately report such confirmation to EPA and state and extension services. After that time, BASF need no longer investigate new reports of lack of herbicide efficacy regarding that specific species in that specific state, but BASF must continue to comply with A.2. above in regard to any other weed species in any such state and develop, submit to EPA, and implement a strategy to address the ongoing resistance. In addition, for each grower or user in any jurisdiction who reports a lack of efficacy, BASF must continue to provide stewardship about resistance management to the grower or user throughout their use of this product, regardless of whether resistance is confirmed.
4. BASF must keep records of all field evaluations for “likely resistance” for a period of 3 years and submit these records to EPA for awareness.
5. In any case described in A.2. above where one or more of the Norsworthy criteria are met for a weed species not already confirmed to be resistant to dicamba in that specific state, BASF must:  
Provide the grower, user, and landowner, if the landowner is accessible, with specific information and recommendations to control and contain likely resistant weeds, including retreatment and/or other non-chemical controls, as appropriate. If requested by the grower or user, BASF or its agent must become actively involved in implementation of weed control measures\ and BASF must provide to EPA upon request any written agreement provided to applicable customers. At the time of the initial determination that one or more of the Norsworthy criteria are met,

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<sup>1</sup> The Norsworthy “likely herbicide resistance” criteria are: (1) failure to control a weed species normally controlled by the herbicide at the dose applied, especially if control is achieved on adjacent weeds; or (2) a spreading patch of uncontrolled plants of a particular weed species; or (3) surviving plants mixed with controlled individuals of the same species. The identification of any of these criteria in the field indicates that “likely herbicide resistance” is present.

and prior to any application of alternative control practices, BASF must request that the grower provide BASF access to the relevant field(s) to collect sufficient specimens of the likely resistant weeds (potted specimens or seeds) to be able to effectively statistically evaluate the potentially resistant weeds for resistance for further evaluation in the greenhouse or laboratory. Alternately, BASF may request that the grower or user provide such specimens, at BASF's expense. If access is granted, BASF must promptly collect samples of the likely resistant weeds if available.

- a. If viable specimens have been collected, BASF must commence greenhouse or laboratory studies to confirm whether resistance is present as soon as practicable following sample collection;
- b. If permitted by the grower, BASF must contact or visit the grower no earlier than 2 weeks and no later than 4 weeks after implementation of the additional weed control measures in order to evaluate success of such measures; and
- c. If the additional weed control measures were not successful in controlling the likely resistant weeds, then the BASF must:
  - i. Consult with the grower and investigate, with the grower, the reason(s) why the additional control measures were not successful;
  - ii. Report annually to EPA and to state and local extension agencies the inability to control the likely resistant weeds
  - iii. Report to growers, users, and landowners, if landowner is accessible, adjacent to the affected field the inability to control the likely resistant weeds prior to the growing season; and
  - iv. Offer to further assist the grower in controlling and containing the likely resistant weeds, including retreatment and/or other non-chemical controls, as appropriate.
  - v. Maintain a website that summarizes reports of resistance by state, county, weed species, and year resistance was confirmed.

## **B. Educational / Informational Component:**

1. BASF must develop, annually update, provide to EPA and state extension, and implement an education program for growers and users that includes the following elements:
  - a. The education program shall identify appropriate best management practices (BMPs), set forth under the "Best Management Practices (BMPs) Component," below, to avoid, delay and/or control weed resistance, and shall convey to growers the importance of complying with BMPs;
  - b. The education program shall include at least one written communication regarding herbicide resistance management each year, directed to users of Engenia Herbicide for use over-the-top on dicamba tolerant soybean or cotton as well as all purchasers of DT seed, if BASF also sells DT seed. This written communication must accompany the purchase of seed bags; and
  - c. BASF must transmit the BMPs to all purchasers of DT (if applicable) seed and users of Engenia Herbicide. In addition to the other requirements of these Terms and Conditions, this transmittal must describe to growers and users the commitments as described in section A5 about investigations of dicamba-resistant weeds.
  - d. All BASF sales representatives (of both seed and herbicides) must have immediate access to the education program for distribution to growers, users, extension agents, neighboring landowners, and any other interested stakeholder.
  - e. The education program must include information about how to determine the appropriate buffers so that users have a better understanding what constitutes a buffer on his/her field(s), and recommendations for weed control practices in buffer zones. The education program must also include information on determination of sensitive areas and cutoff date restrictions.
  - f. Provide training on the use of broadcast hooded sprayers (e.g., what qualifies as hooded

- sprayer, appropriate uses, manufactures).
- g. Training for sprayer cleanouts (before and after spraying as indicated on labels).
  - h. Training for Bulletins Live 2!.
  - i. Training on updated record keeping requirements.
  - j. Training should be modified to clearly prohibit the use of the dicamba products not intended for use on DT crops formulation for all application timings.
  - k. Training on the use of newly required pH buffering adjuvants (volatility-reduction adjuvants) and/or drift reduction adjuvants.
  - l. Training on how users/growers can report incidents to EPA and states.
  - m. Provide to EPA the original education program for dicamba users within three months of the issuance of this registration. Provide to EPA copies of educational materials provided to seed purchasers. Provide the educational materials to states that provide their own training. Provide any other stakeholder with educational materials upon request.

### **C. Evaluation Component:**

1. BASF will annually conduct a survey directed to users of Engenia Herbicide and growers planting dicamba-tolerant seed for use over-the-top of dicamba tolerant soybean or cotton. This survey must be based on a statistically representative sample. The sample size and geographical resolution should be adequate to allow analysis of responses within regions, between regions, and across the United States. BASF must submit the draft survey to EPA as well as the survey results. This survey shall evaluate, at a minimum, the following:
  - a. Growers' and users' adherence to the terms of the Engenia Herbicide Use Directions and Label Restrictions, if Engenia Herbicide is used, and
  - b. Whether growers have encountered any perceived issue with non-performance or lack of efficacy of Engenia Herbicide and, if so, how growers have responded.
  - c. Whether growers have reported any issues with non-performance or lack of efficacy of Engenia Herbicide and how the company representatives have responded
  - d. A question asking about awareness of public reports of resistance (e.g., any awareness of popular press or industry publications on dicamba resistance or suspected resistant biotypes).
  - e. A question directed asking about awareness of personal/neighbor reports of resistance.
  - f. Application practices for dicamba product applied (rate, time, amount, etc...) to the fields planted with traited seed.
2. Utilize the results from the survey described in paragraph 1 of this section to annually review, and modify as appropriate for the upcoming growing season, the following elements of BASF's resistance management plan:
  - a. Efforts aimed at achieving adoption of BMP's;
  - b. Responses to incidents of likely resistance and confirmed resistance; and
  - c. The education program and effectiveness of information dissemination. At the initiative of either EPA or BASF, EPA and BASF shall consult about possible modifications of the education program.
3. BASF must annually report to EPA any changes to its resistance management plan made in response to survey results as provided in section D.1. above.

### **D. Reporting Component:**

1. Submit annual reports to EPA by September 30 of each year, beginning on September 30,

2021. Such reports shall include:

- a. Annual sales of Engenia Herbicide by state and, if applicable, annual sales of (traited seed) by state;
- b. The first annual report shall include the current education program and associated materials, and subsequent annual reports shall include updates of any aspect of the education program and associated materials that have materially changed since submission of the previous annual report, along with results of the survey as described in section C of this document;
- c. Summary of your efforts aimed at achieving implementation of BMP's by all growers and users;
- d. Summary of your determinations as to whether each reported lack of herbicide efficacy was "likely resistance," your follow-up actions taken, and, if available, the ultimate outcome (e.g., evaluation of success of additional weed control measures) regarding each case of "likely resistance." In the annual report, BASF must list the cases of likely resistance by county and state.
- e. The results of the annual survey described in paragraph 1 under "Evaluation Component," above, including the extent to which growers are implementing herbicide resistance BMPs, and a summary of your annual review and possible modification – based on that survey – of the education program, , and response to reports of likely resistance, described in paragraph 2 under "Evaluation Component," above; and
- f. Summary of the status of any laboratory and greenhouse testing conducted pursuant to section A.5.c. following up on incidents of likely resistance, performed in the previous year. Data pertaining to such testing must be included in the annual reports and made available to the public.
- g. Report how many training sessions BASF conducted, identifying the dates, locations, and numbers of individuals trained per session. If BASF supported or partnered with other entities to provide training, report the names of the entities and the number of training sessions conducted by each, identifying the dates, locations, and numbers of individuals trained per session

Following your submission of the annual report, you shall meet with the EPA at EPA's request in order to evaluate and consider the information contained in the report.

#### **E. Best Management Practices (BMPs) Component:**

1. Best management practices (BMPs) must be identified in your education program. Growers and users must be advised of BMP's in product literature, educational materials and training. BASF's transmittal of the BMPs must also describe to growers the commitments in this section of this document. Such BMPs must direct growers and users to scout fields before application to ensure proper weed identification and after application to confirm herbicide effectiveness, and that growers and users should report any incidence of lack of efficacy of this product against a particular weed species to BASF or a BASF representative.
2. The following are the additional elements and information that must be included in these BMPs:
  - a. Regarding crop selection and cultural practices:
    - i. Understand the biology of the weeds present.
    - ii. Use a diversified approach toward weed management focused on preventing weed seed production and reducing the number of weed seeds in the soil seed-bank.
    - iii. Emphasize cultural practices that suppress weeds by using crop competitiveness.

- iv. Plant into weed free fields, keep fields as weed free as possible, and note areas where weeds were a problem in prior seasons.
- v. Incorporate additional weed control practices whenever possible, such as mechanical cultivation, biological management practices, crop rotation, and weed-free crop seeds, as part of an integrated weed control program.
- vi. Do not allow weed escapes to produce seeds, roots or tubers.
- vii. Manage weed seed at harvest and post-harvest to prevent a buildup of the weed seed-bank.
- viii. Prevent field-to-field and within-field movement of weed seed or vegetative propagules.
- ix. Thoroughly clean plant residues from equipment before leaving fields.
- x. Prevent an influx of weeds into the field by managing field borders.
- xi. Fields must be scouted before application to ensure that herbicides and application rates will be appropriate for the weed species and weed sizes present.
- xii. Fields must be scouted after application to confirm herbicide effectiveness and to detect weed escapes.
- xiii. If resistance is suspected, treat weed escapes with an alternate mode of action or use non-chemical methods to remove escapes.
- b. Regarding herbicide selection:
  - i. Use a broad spectrum soil applied herbicide with a mechanism of action that differs from this product as a foundation in a weed control program.
  - ii. A broad spectrum weed control program should consider all of the weeds present in the field. Weeds should be identified through scouting and field history.
  - iii. Difficult to control weeds may require sequential applications of herbicides with alternative mechanisms of action.
  - iv. Fields with difficult to control weeds should be rotated to crops that allow the use of herbicides with alternative mechanisms of action.
  - v. Apply full rates of this herbicide for the most difficult to control weed in the field. Applications should be made when weeds are at the correct size to minimize weed escapes.
  - vi. Do not use more than two applications of this herbicide or any herbicide with the same mechanism of action within a single growing season unless mixed with another mechanism of action herbicide with overlapping spectrum for the difficult to control weeds.
  - vii. Report any incidence of lack of efficacy of this product against a particular weed species to BASF or a BASF representative.

## **Appendix E**

### Testing of Tank Mix Volatility-Reduction Adjuvants/Buffering Adjuvants Properties

Products proposed as [volatility-reduction adjuvants/buffering adjuvants] may be added to the list of approved products on [enter URL] website if found, based upon such testing, that the Test Mixture results in a humidome airborne dicamba concentration are comparable to or less than the established Testing Standard as defined below.

#### Testing Conditions

Humidome test using conditions based on ASTM STP1587\*, such as those outlined below. Testing is not required to be performed to GLP standards, but are expected to be well documented and validated, with associated record retention for potential future reference.

Testing Standard: [Dicamba Product] + Roundup PowerMAX + VaporGrip Xtra or Sentris (0.5 lb a.e./A + 1.125 lb a.e. glyphosate/A + XXX use rate)

Test Mixture: [Dicamba Product] + Roundup PowerMAX + Buffering Adjuvant  
(0.5 lb a.e. dicamba/A + 1.125 lb a.e. glyphosate/A + XXX use rate)

Water carrier rate: 15 GPA

Normal plastic humidome as specified in ASTM STP1587

Treated substrate: soil/soil blend as specified in ASTM STP1587 with 12-22% moisture

Temperature:  $35 \pm 5^\circ \text{C}$

Relative humidity:  $40 \pm 5\% \text{ RH}$

Sample collection duration: 24 hours

Air sampling rate: 1.5-3.0 L/min

Air sampling filter: any substrate validated to capture >95% of dicamba (*e.g.*, fiberglass mesh + cotton pad, cellulose + PUF, MCE)

Replications: 3 minimum

Analysis: A one-tail (upper-bound) t-test ( $\alpha = 0.10$ ) performed for all test mixtures relative to testing standard.

Passing result: If the Test Mixture mean was not statistically greater than that of the Testing Standard, then the [volatility-reduction adjuvant/buffering adjuvant] in the Test Mixture demonstrated the ability to reduce volatility equivalent to or better than that of [VaporGrip/Sentris].

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\* Gavlick, W.K., D.R. Wright, A. MacInnes, J.W. Hemminghaus, J.K. Webb, V.I. Yermolenka, W. Su. 2016. A Method to Determine the Relative Volatility of Auxin Herbicide Formulations, Pesticide Formulation and Delivery Systems: 35th Volume, ASTM STP1587. pp. 24-32G. R. Goss, Ed. ASTM International, West Conshohocken, PA.

## **Appendix F**

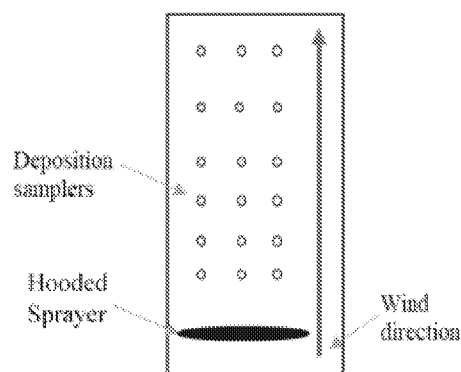
### **Protocol for Testing of Hooded Sprayers to Qualify for Reduced Downwind Spray Buffer Distances when Applying Engenia Herbicide**

Application equipment, such as hooded sprayers, proposed for in-crop (over-the-top) dicamba applications may be added to the list of qualified hooded sprayers on [enter URL]

Herbicideapplicationrequirements.com website if found, based upon such testing, that it reduces the spray drift of dicamba to a level that is equivalent to or less than that from the established baseline hooded sprayer as defined below.

## Testing Conditions

Testing is to be conducted in an Ambient Breeze Tunnel (ABT) controlled environment wind tunnel using the conditions outlined below, with guidance from US EPA (2016)<sup>1</sup>. A section of a hooded sprayer must be placed in the tunnel with the boom length perpendicular to the wind direction. Absorbent pads must line the floor of the ABT to prevent droplet bounce. Dicamba deposition samplers must be collected at pre-determined distances downwind from the sprayer. After a 2-minute clear-out period, samples must be retrieved from the farthest to the closest distances relative to the sprayer for subsequent



residue analysis to quantify dicamba deposition. Testing conditions are established herein with the express purpose of producing and comparing drift deposition curves between a baseline and a proposed hooded sprayer and are therefore not intended to be representative of field conditions.

Testing is not required to be performed to GLP standards but is expected to be well-documented and validated, with associated record retention for potential future reference. Results of testing must include a certification indicating whether the study was performed pursuant to this protocol and any deviations from it, and a conclusion stating whether the product tested meets the Passing Result criterion specified below.

Spray components:                      Clarity<sup>®</sup> + Induce  
                                                          (0.5 lb a.e./A + 0.25% v/v)

Baseline hooded sprayer:            RedBall<sup>®</sup> 642E

Hooded sprayer tested:                TBD

Boom Configuration:                    Contain a minimum of 4 nozzles with spacing according to manufacturer's use directions; fixed position; length perpendicular to wind direction; rear curtain of hood 3 inches above a simulated crop and, at the same boom height, above bare ground

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<sup>1</sup> United States Environmental Protection Agency. 2016. Generic Verification Protocol for Testing Pesticide Application Spray Drift Reduction Technologies for Row and Field Crops



Nozzle/pressure:	TT 11003 at 50 psi
Spray rate:	15 GPA
Spray duration:	30 seconds
Wind speed:	Minimum 10 mph
Temperature:	10-35°C
Humidity:	20-80%
Deposition samplers:	Filter paper on blocks 3-in above ground
Number of samplers:	Minimum 3 at each downwind distance
Sampler distances:	Minimum 6 downwind distances for analysis purposes; distances should follow a geometric distribution ( <i>e.g.</i> , 2, 4, 8, 20, 30, 60, and 120 feet) and cover out to 120 feet but may vary based on study considerations.
Drift simulations:	Minimum 3 per hooded sprayer
Analytical analysis:	Conducted per latest version of analytical method ME-1871 or another validated method <sup>1</sup>
Analysis:	Appropriate non-linear and/or generalized linear models will be fit to the drift deposition measurements of each hooded sprayer evaluated. After an appropriate model is selected, deposition estimates will be made at 2, 4, 8, 20, 30, 60, and 120 feet for both the baseline and proposed hooded sprayer. The boom orientation (crop canopy or bare ground) that gives the highest overall deposition for the baseline sprayer will be used for analysis.
Passing result:	If a comparison of the deposition values for the proposed hooded sprayer to the baseline hooded sprayer at 20 feet, using a one-tailed t-test (assuming equal variances, upper bound, alpha=0.10), is not statistically different, then the proposed hooded sprayer functions equivalent to the baseline hooded sprayer.

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<sup>1</sup> A study conducted with a validated analytical method other than ME-1871 must be accompanied with a report containing the environmental chemistry method, describing in full the analytical method that was used and validated, as well as an independent laboratory validation of the method.